UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

# INSECT PEST SURVEY

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## A PARTIAL REPORT ON THE SPECIAL SURVEY IN THE VICINITY OF PORTS OF ENTRY, JUNE 1943 TO JUNE 1945. 1/

The special survey in the general vicinity of ports of entry was conducted by the Division of Foreign Plant Quarantines, Bureau of Entomology and Plant Quarantine in all Seaboard, Gulf Coast, and Mexican Border States from June 1943 through June 1945. Owing to the fact that the collecting season for insects in the northern seaboard States is restricted by winter weather, a greater part of the inspection time was spent in southern California, the Rio Grande Valley of Texas, and in the other states bordering the Gulf of Mexico, where survey crews could be kept in the field every month of the year.

The purpose of the survey was to ascertain whether, with the increased wartime traffic and its accompanying and unavoidable relaxation of quarantine vigilance, new foreign agricultural insect pests had been permitted entry and establishment in the port areas.

Cultivated plants, field crops, orchards, and home gardens received first attention by the inspectors. In areas where these were lacking, attention was given to native vegetation and to ornamentals, especially to plants belonging to families related to important cultivated plants. For instance, wild legumes in the coastal areas of Florida and along the Keys were intensively inspected during the times and in the places where cultivated legumes were absent or scarce. Truck crops and cereal and forage crops received the most inspection. More than twice as many hours were spent on leguminous truck crops than on any other group of plants.

Prior to undertaking survey operations in any state, contact was made with appropriate State officials. They were informed of the purpose of the work and of procedures to be followed, and were invited to cooperate. When a species new to this country was discovered, or when new distribution was indicated by the survey, information relative to the find was brought promptly to the attention of the officials in the State or States concerned.

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1/ Abstracted by Gertrude Myers, Division of Insect Pest Survey and Information, from a report prepared by R. B. Swain, Ruth F. Olsen, and Grace R. Phillips with the assistance of Walter S. Fields, Division of Foreign Plant Quarantines. This Supplement contains the outstanding information on the entomological results of the survey.

Identifications were made by the Division of Insect Identification of this Bureau and the Bureau of Entomology and Plant Quarantine of the California State Department of Agriculture, which supplied not only the names of the insects, but where possible, information on the probable origin, host plant preference, and economic importance of the significant finds. Approximately 3,500 plant-feeding insects and mites were determined to species. The remainder were determined to family, genus, or tentatively to species. The insects which were specifically determined were distributed among all the important orders of insects.

The most important and gratifying result of the survey was that few important foreign agricultural pests were found. At fewest 38 species of insects which had never been recorded from the United States were discovered. Of these, one species, Maruca testulalis (Geyer), is a notably destructive pest and six others are of some economic importance in the countries where they are known to occur.

The survey did not reveal the presence of any immediately important insect pests whose establishment in the vicinities of ports of entry reasonably could be attributed to the increase in wartime shipping. In addition to the above mentioned species, approximately 128 species of insects designated as undescribed, or probably so, were discovered, some of which are potential pests of economic importance. Incidentally, the survey established new distribution records, discovered new host relationships for many species already known to occur in this country, and added several thousands of specimens to scientific collections.

In this abbreviated report discussions of insects have been limited to those species found in the country for the first time; to some of the native and naturalized species for which new distribution records, host relationships, and other important information have been established; and to one species recently described.

## Insects Recorded from the United States for the First Time

Probably the most outstanding discovery made by the survey was the finding of a bean pod borer, Maruca testulalis (Geyer). The insect was found in the lower Rio Grande Valley of Texas in June 1943 2/. The larvae, which were boring in the pods of string beans near Brownsville, were taken on June 19, 20, and 21. Only one infested field was found, although intensive examinations were made in the immediate vicinity. The larvae were apparently not numerous. On the first day only 10 were found in a 2-hour search.

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2/ Willaimson, Amis L. Two foreign bean pod borers discovered in Texas. Jour. Econ. Ent. 36: 936-937, 1943.

Inspections of this field and its environs were made at intervals throughout the period of the survey, but the insect was never found again. In fact, 3,793 man-hours of inspection were expended on its host plants on the Mexican Border and the Gulf Coast districts of Texas, and 5,645 in southern Florida without finding the insect again. The fact that the one local infestation of this dangerous insect apparently did not maintain itself beyond one year does not lessen the interest in the find.

This species is an important pest of beans and has been recorded from cowpeas and several other species of leguminous plants. It occurs in the West Indies, some of the countries of South America and Africa, India, Hawaii, many of the Pacific Islands, and Australia.

A gelechiid, Gnorimoschema gudmanella (Wlsm.), was discovered for the first time in the United States on May 3, 1944, at Boynton Beach, Palm Beach County, Fla., where larvae were attacking the flower buds of bell pepper. Later in the month larvae were taken from fruits of bell pepper at Hypoluxo and Delray in that county, and near Miami in Dade County. The species was discovered in Texas in the fruits of bell pepper at Weslaco, Hidalgo County, during December 1944.

In May and June 1945, infestations of bell pepper were found at Fort Lauderdale and Pompano in Broward County, Fla. Ninety-five percent of the flower buds in a 2-acre planting at Fort Lauderdale were infested and many buds had been shed as a result of earlier injury. An infestation in the flower buds of hot pepper was found at Orlando, Orange County, where almost all of the buds were attacked. In Texas, additional infestations were found during the spring of 1945 in Hidalgo and Cameron Counties; one in the Rio Hondo district of Cameron County was reported to be heavy.

This species has been recorded infesting peppers in Mexico and the West Indies, and has been found in tomato fruits arriving at Border ports from Mexico.

A phycitid moth, Ancylostomia stercorea (Zell.), was taken in this country for the first time on February 23, 1944, when larvae were found feeding on the seeds in green, mature pods of pigeonpea at Homestead in Dade County, Fla. In the following month infestations were found in four additional localities in Dade County, and near Boynton Beach in Palm Beach County. In April 1944 infestations were found in seven localities on the Florida Keys belonging to Monroe County, and in one locality in each of Dade and Palm Beach Counties. Damage ranged from moderate to severe in green and dry pods still attached to the plants. During February, April, and May of 1945, this species was collected again in Florida, but no new areas were found infested. The most severe and extensive damage occurred in Dade County, particularly around Coconut Grove and Homestead, where as high as 100 percent infestations were reported. All collections in Florida were from pigeonpea, except in one place where a larva was found feeding inside the pod of black-eyed pea.

This species is distributed in Mexico, several countries of Central America, the West Indies, the Bahamas, and French Guiana.

*Lineodes vulnifica* Dyar, a pyraustid moth, was first found in this country at Brownsville, Tex., in September 1943, when a few larvae were taken on the foliage of bell pepper. During October and November the insect was taken again at Brownsville and also in Dimmit and Maverick Counties, Texas.

According to H. W. Capps, who identified the specimens, the species was originally described from Mexico and is known to occur in Costa Rica, Guatemala, and Panama.

*Callosobruchus phaseoli* (Gyll.) was taken in Dade County, Fla., where severe infestation was found in the dry seed pods of *Dolichoa lablab* in the spring of 1944.

This species is generally distributed throughout the tropical regions of the world and attacks several species of leguminous plants.

Adults and larvae, tentatively identified as cerambycid, *Parmenonta valida* Thos., were collected on Stock Island in the Florida Keys on April 10, 1944. The larvae were taken in the twigs of the giant milkweed or akund calotrope (*Calotrope gigantea*), and the adults, on the foliage of this shrub. Larvae positively identified as this species were taken in the twigs of the geigertree cordia (*Cordia sebestena*) on the same day.

This species is common in Central America and is frequently intercepted by plant quarantine inspectors.

Other insects and mites of lesser importance discovered in the United States for the first time are listed as follows: Lepidoptera - *Epinotia lantana* (Busck) in Florida; *Fundella argentina* Dyar, in Texas and Florida; *Macalla thyrsisalis* Wlkr. in Florida; *Trichotaphe melissia* (Wlsm.) in Florida and Georgia; *Zamagiria deia* Dyar in Florida; *Aganectesis indecora* Dyar in Florida; *Epitamyra minusculalis* (Moschler) in Florida; *Ercta vittata* (F.) in Florida; *Metephestia simplicula* (Zell.) in Florida; *Pyroderces stigmatophora* (Wlsm.) in Florida, Georgia, and Louisiana; *Stegasta capitella* (F.) in Florida. Hemiptera - *Acutalis nigrinervis* Fowl. in Florida; *Lygaeus vittiscutis* Stal in Texas; *Poblicia constellata* (Wlkr.) in Texas; and *Savius jurgiosus* Stal in Texas. Coleoptera - *Andrector ruficornis* in Florida. Acarina - *Aceria (Eriophyes) peucedani* (Can.) in California.

## Native and Naturalized Insects

Several net-collected adults of the phycitid moth, Fundella pallucens Zell. [3] taken at Vero Beach, Indian River County, Fla. in 1940 and 1941, represented the known material collected in the United States prior to survey collections. The inspectors collected this species in abundance in cultivated and wild leguminous food plants in several countries in southern Florida. Positive determinations were made of specimens takens in St. Lucie, Martin, Palm Beach, Broward, Dade, and Collier Counties, and tentative determinations were made of specimens from Monroe County and the island of Terra Ceia belonging to Manatee County. Larvae were found feeding on lima beans, black-eyed peas, cowpeas, Vigna sp., V. repens, Canavalia gladiata, C. obtusifolia, Bauhinia variegata, and Chamaecrista fasciculata.

This insect is destructive to many species of legumes in the West Indies.

The gelechiid, Gnorimoschema plaesiosema (Turner), was recorded [4] as G. tuberosella Busck from California, where the larvae were found in the stems of nightshade (Solanum nigrum var. douglasi). This was the only state known to be infested to March 1944, when the survey inspectors discovered the larvae in the stems of nightshade (Solanum nigrum) at Buras, in Plaquemines Parish, La. On May 3, 1945 larvae and pupae were found in the stems of potato plants growing in a home garden in Hymel in Saint James Parish. The infestation was spotty throughout the planting of 4 rows about 100 feet long; infested plants could be detected by their dying aspect. H. H. Keifer of the California State Department of Agriculture stated that attack by the insect there is confined to Solanum nigrum var. douglasi. During the survey the insect was found to be common on nightshade in the New Orleans district of Louisiana and in southern California. A larva doubtfully identified as this species was taken in a Solanum sp. at Pawleys Beach, S. C.

The insect, originally described from Australia, is of considerable importance as a pest of potato and tomato there and in New Zealand. This insect was described as a new species, Gnorimoschema tuberosella [5], from Peru, where potato tubers and stems were infested.

Larvae of the crambid, Chilo loftini Dyar, were found on November 28, 1944, boring in sugarcane and rice stubble near Calexico, Imperial County, Calif. The insect was subsequently found rather widely distributed in the irrigated southern part of the Imperial Valley. It was originally described from specimens reared from sugarcane at Glendale, Ariz., in 1914. Infestations in sugarcane and Johnsongrass at Marinette and Phoenix, Ariz., were reported in 1921 and 1926 respectively. These collections were confined to Maricopa County.

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[3] Formerly known as F. cistipennis (Dyar).

[4] Barrett, R. E. Notes on a new potato pest. Jour. Econ. Ent. 25: 134, 1932.

[5] Busck, A. Two new Peruvian microlepidoptera of economic importance (Belechiidae and Oecophoridae). Ent. Soc. Wash. Proc. 33: 59-60, 1931.

Because of the potential importance of this species as a pest of cereal crops, an intensive search for it was conducted in southern California and adjacent areas in Arizona and Mexico. As a result, new locality records were established at Coachella and Blythe, Riverside County, Calif., at Yuma, Parker, Somerton, and San Luis, Yuma County, Ariz., and at Mexicali and San Luis in the States of Baja California and Sonora, Mexico. It was found in six crop plants which, in order of the degree of infestation (high to low), were: rice, milo maize, sugarcane, sweet corn, barley, and Sudangrass. No extensive damage was reported during the period (November 1944 - April 1945). Other hosts were bulrush (Scirpus sp.), a grass (Echinochloa sp.), Johnsongrass (Sorghum halepense), lemongrass (Cymbopogon citratus), wild millet, pampasgrass (Cortaderia selloana), bristlegrass (Setaria lutescens), and canna (Canna sp.).

Chilo loftini is a sugarcane pest of economic importance in western Mexico, and has been reported from the States of Sinaloa, Nayarit, and Colima since 1925.

The sweetpotato weevil (Cylas formicarius subsp. elegantulus (Summers)), well known in the Gulf States, was discovered for the first time in South Carolina. Specimens were taken on November 24, 1944 in Ipomoea littoralis at Folly Beach, on Folly Island just south of Charleston, and on December 6, 1944 in Iponoea sp. on the Isle of Palms, just north of Charleston.

One adult of Tychius griseus Schaeffer was collected by sweeping at Bellingham, Whatcom County, Wash., in September 1943, and 21 adults were collected from red clover near the same town in June 1945. According to L. L. Buchanan the weevil had not been reported previously west of Michigan.

Pollinia pollini (Costa) was found on olive in the vicinity of Jamul, San Diego County, Calif., in April 1944 and was taken on the same host at Cloverdale and Geyserville, Sonoma County, in June and July 1944.

According to E. K. Carnes 6/ this scale was introduced into California in 1887 from Italy with a shipment of olive trees, but its presence was not noticed until 1893, at which time the trees were destroyed and a search made for any other infestation. Since the insect was not found again, it is reasonable to believe that it was eradicated and that the present infestation resulted from a later introduction.

Larvae of Crocidosema plebeiana Zell. were found infesting the pods of lima beans in Florida at Pompano, Palm Beach County, in February 1944 and at Jensen and Hobe Sound, Martin County, in March 1944; and the pods of Turnera ulmifolia at Key West on April 9, 1945. These two new host plants represent two families of plants to be added to the list of food plants of this olethreutid, as malvaceous plants only had previously been recorded as hosts.

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6/ Carnes, E. K. The Coccidae of California. California State Commr. Hort. Bien. Report. 2 (1905-06): 168. 1907.

Euscepes porcellus Boh. was found feeding in sweetpotato stems in Florida in Monroe, Dade, Martin, and Indian River Counties. Previously this weevil had been taken chiefly in seaside morning-glory in Florida, and had not been recorded as feeding on sweetpotato. This insect is widely distributed in the southern coastal section of the State.

## Other Entomological Findings

Of the 128 undescribed, or probably undescribed, species of insects discovered during the survey, about 20 are probably of some economic importance. Most of these species may be native to the United States; it is possible that some are from foreign countries.

One of these insects, Keiferia peniculo Heinr. 7/, was originally described from specimens taken from eggplant by the inspectors of the special survey. It was found mining, and occasionally feeding externally, on the leaves of eggplant in Texas in 1943 and 1944, in New Mexico in 1944, and in California in 1945.

## Parasites

During the rearing of the immature stages of plant-feeding insects 141 species of parasites emerged from material collected by the inspectors of the survey. Of this number, 17 were determined as undescribed species and 8 as probably undescribed. Four of the new species and one of the questionable ones were reared from Lepidoptera collected for the first time in the United States during the survey. A complete list of parasites together with pertinent information will be published later.

## Special Projects

During the period of the survey two intensive projects were undertaken in addition to the general survey. One was at Nicholson, Miss., where from December 1944 to February 1945 a search was conducted for alien wood-boring coleopterous insects known to have been brought into the United States with a shipment of cork from French Morocco. A total of 1,339.25 man-hours were spent in the Nicholson district where the cork had been stored, and the collection of 1,208 lots of insects was made, of which about 2,350 individual specimens were added to the United States National Museum collections. The survey did not reveal that the foreign insects especially sought (the bostrichids, Bostrichus capucinus L. and Scobicia chevrieri Villa, and the cerambycid, Niphona picticornis Muls.), had become established in native woods.

The other project was conducted from December 1944 through April 1945 in the lower Imperial Valley of California and in areas of Arizona and Mexico adjacent to the valley, in search for the crambid, Chilo loftini Dyar. The results of this survey are included in the note under this insect.

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7/ Heinrich, C. A new species of Keiferia on eggplant. Ent. Soc. Wash. Proc. 48: 35-36. Illus. 1946.